



# ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: Trent 556-61  
 UNIQUE ID NUMBER: 8RR045  
 COMBUSTOR: Phase5 Tiled  
 ENGINE TYPE: TF

BYPASS RATIO: 7.5  
 PRESSURE RATIO ( $\pi_{00}$ ): 36.6  
 RATED THRUST ( $F_{00}$ ) (kN): 263.9

### REGULATORY DATA

| CHARACTERISTIC VALUE:                        | HC  | CO   | NO <sub>x</sub> | SMOKE NUMBER |
|--|-----|------|-----------------|--------------|
| D <sub>p</sub> /F <sub>00</sub> (g/kN) or SN | 0.3 | 15.2 | 64.9            | 5.4          |
| AS % OF ORIGINAL LIMIT                       | 1.5 | 12.9 | 57.3            | 29.8         |
| AS % OF CAEP/2 LIMIT (NO <sub>x</sub> )      |     |      | 71.6            |              |
| AS % OF CAEP/4 LIMIT (NO <sub>x</sub> )      |     |      | 80.9            |              |
| AS % OF CAEP/6 LIMIT (NO <sub>x</sub> )      |     |      | 89.9            |              |
| AS % OF CAEP/8 LIMIT (NO <sub>x</sub> )      |     |      | 102.4           |              |

### DATA STATUS

- PRE-REGULATION  
 x CERTIFICATION  
 - REVISED (SEE REMARKS)

### TEST ENGINE STATUS

x NEWLY MANUFACTURED ENGINES  
 x DEDICATED ENGINES TO PRODUCTION STANDARD  
 - OTHER (SEE REMARKS)

### EMISSIONS STATUS

x DATA CORRECTED TO REFERENCE  
 (ANNEX 16 VOLUME II)

### CURRENT ENGINE STATUS

(IN PRODUCTION, IN SERVICE UNLESS OTHERWISE NOTED)  
 x OUT OF PRODUCTION (DATE: - )  
 - OUT OF SERVICE (DATE: - )

### MEASURED DATA

| MODE   | POWER SETTING (%F <sub>00</sub> ) | TIME (minutes) | FUEL FLOW (kg/s) | EMISSIONS INDICES (g/kg) |           |                 | SMOKE NUMBER |
|--|-----------------------------------|----------------|------------------|--------------------------|-----------|-----------------|--------------|
|  |                                   |                |                  | HC                       | CO        | NO <sub>x</sub> |              |
| TAKE-OFF   | 100                               | 0.7            | 2.240            | 0.02                     | 0.17      | 44.77           | 4.3          |
| CLIMB OUT  | 85                                | 2.2            | 1.830            | 0.01                     | 0.38      | 33.25           | 4.2          |
| APPROACH   | 30                                | 4.0            | 0.620            | 0.04                     | 0.54      | 11.68           | 2.1          |
| IDLE   | 7                                 | 26.0           | 0.230            | 0.13                     | 9.96      | 6.09            | 0.9          |
| LTO TOTAL FUEL (kg) or EMISSIONS (g)                               |                                   |                | 843              | 57                       | 3762      | 16167           | -            |
| NUMBER OF ENGINES  |                                   |                |                  | 3                        | 3         | 3               | 3            |
| NUMBER OF TESTS  |                                   |                |                  | 7                        | 7         | 7               | 7            |
| AVERAGE D <sub>p</sub> /F <sub>00</sub> (g/kN) or AVERAGE SN (MAX) |                                   |                |                  | 0.2                      | 14.3      | 61.3            | 4.9          |
| SIGMA (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)             |                                   |                |                  | 0.2                      | 1.2       | 1.7             | 3.1          |
| RANGE (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)             |                                   |                |                  | 0-0.4                    | 13.5-15.8 | 59.8-63.2       | 2.4-8.4      |

### ACCESSORY LOADS

POWER EXTRACTION 0 (kW) AT - POWER SETTINGS  
 STAGE BLEED 0 (% CORE FLOW) AT - POWER SETTINGS

### ATMOSPHERIC CONDITIONS

|                      |               |
|----------------------|---------------|
| BAROMETER (kPa)      | 100-102.9     |
| TEMPERATURE (K)      | 275.5-280.3   |
| ABS HUMIDITY (kg/kg) | 0.0038-0.0062 |

### FUEL

|          |      |
|----------|------|
| SPEC     |      |
| H/C      | 1.97 |
| AROM (%) | 17.4 |

MANUFACTURER: Rolls-Royce plc  
 TEST ORGANIZATION: Rolls-Royce  
 TEST LOCATION: Derby  
 TEST DATES: 23/06/2005-24/06/2005

### REMARKS

1. Certification Report DNS 90543
2. EP Engine Standard
3. Engines manufactured after 2004

Compliance with Fuel Venting requirements: x ('x' if complies, 'PR' if pre-regulation, '-' if information is not available)